2019-nCoV Literature Situation Report (Lit Rep)
March 19, 2020

The scientific literature on COVID-19 is rapidly evolving and these articles were selected for review based on their relevance to Washington State decision making around COVID-19 response efforts. Included in these Lit Reps are some manuscripts that have been made available online as pre-prints but have not yet undergone peer review. Please be aware of this when reviewing articles included in the Lit Reps.

Key Takeaways

- **A study highlights the significance of large-scale and standardized clinical testing for early prevention and control of COVID-19.**
- **A couple of studies suggest the need to extend the quarantine period to 3 weeks to account for the high variability of incubation periods in COVID-19 cases.**
- **In line with our current knowledge, another study shows no evidence of vertical transmission of SARS-CoV-2 among pregnant persons.**
- **Two studies describe the epidemiological and clinical features of children with COVID-19 and emphasize the need to determine the transmission potential of asymptomatic cases, which are more prevalent in this population.**
- **A new study shares knowledge and perceptions of COVID-19 among the general public in the US and UK, which could guide information campaigns by public health authorities, clinicians and the media.**

Non-Pharmaceutical Interventions

- Large-scale and standardized clinical testing needs to be implemented in order to maximize the effect of quarantine and minimize the duration and cost.
- This empirical study highlights the significance of large-scale testing, as successfully implemented in China, for early prevention and control of COVID-19.

  Xie et al. (Mar 15, 2020). Effect of large large-scale testing platform in prevention and control of the COVID-19 pandemic: an empirical study with a novel numerical model. Pre-print downloaded Mar 19 from https://doi.org/10.1101/2020.03.15.20036624

- The study highlights the critical role of contact tracing to contain the COVID-19 outbreak in the early phase in Korea and lists various measures used to complete the contact tracing (i.e. tracking the history of clinic visits, GPS of the cell phones and credit card transaction log).

  Korea CDC (Mar 15, 2020). Coronavirus disease-19: Summary of 2,370 Contact Investigations of the First 30 Cases in the Republic of Korea. Pre-print downloaded Mar 19 from https://doi.org/10.1101/2020.03.15.20036350

Transmission

- Based on 175 confirmed cases reported in China between Jan 20 and Feb 12, Leung found a significant difference in the length of the incubation period of COVID-19 among travelers (10.3 – 13.3 days) and non-travelers (14.6 – 17.1 days) to Hubei, which suggests the need to extend quarantine periods to 3 weeks to account for the high variability of the incubation period in COVID-19 cases.
- Another study that looked at the incubation period of COVID-19 for over 2,000 non-Hubei cases found that incubation periods ranged from 0 to 33 days (median for adults was 7 days and children was 9 days). The authors suggest that extending the adult quarantine period to 18-21 days could be more effective in preventing the spread of COVID-19.

  Leung (Mar 18, 2020). The difference in the incubation period of 2019 novel coronavirus (SARS-CoV-2) infection between travelers to Hubei and non-travelers: The need of a longer quarantine period. Infection Control and Hospital Epi. https://doi.org/10.1017/ice.2020.81

  Jiang et al. (Mar 15, 2020). Is a 14-day quarantine period optimal for effectively controlling coronavirus disease 2019 (COVID-19)? Pre-print downloaded Mar 19 from https://doi.org/10.1101/2020.03.15.20036533

- Using a simulation model informed by reported cases and deaths, the authors estimate that tens of thousands of people (median of 22,876 people) were infected by the time a national emergency was declared in the US on March 13th. Results from the model suggest that fewer than 10% of locally acquired symptomatic infections in the US had been detected until February.
- This highlights the need for immediate, large-scale efforts to mitigate the impacts of COVID-19 on the US

  Perkins et al. (Mar 15, 2020). Estimating unobserved SARS-CoV-2 infections in the United States. Pre-print downloaded Mar 19 from https://doi.org/10.1101/2020.03.15.20036582

Testing and Treatment

- This study of 1,070 specimens collected from 205 patients detected SARS-CoV-2 in specimens from multiple sites, (blood, feces, etc.) suggesting that testing from multiple sites may improve the sensitivity and reduce false-positive results.

  Wang et al. (Mar 11, 2020). Detection of SARS-CoV-2 in Different Types of Clinical Specimens. JAMA. https://doi.org/10.1001/jama.2020.3786

Clinical Characteristics and Health Care Setting

- This article describes the spectrum of illness in 171 children with COVID-19 – most of whom had mild symptoms and were asymptomatic.
- The authors emphasize the need to determine transmission potential of asymptomatic cases that could guide in developing measures to control the ongoing pandemic.

  Lu et al. (Mar 18, 2020). SARS-CoV-2 Infection in Children. NEJM. https://www.nejm.org/doi/full/10.1056/NEJMc2005073

- Yu et al share the clinical and epidemiological features of 82 confirmed COVID-19 pediatric cases aged 0-16 years from a hospital in Wuhan. Most patients had a fever or cough at admission and mild symptoms.

- The hospital discharge rate was 73%, the mean hospital stay was 11.2 days and there were no fatalities.

  Yu et al. (Mar 15, 2020). The clinical and epidemiological features and hints of 82 confirmed COVID-19 pediatric cases aged 0-16 in Wuhan, China. Pre-print downloaded Mar 19 from https://doi.org/10.1101/2020.03.15.20036319

- Pregnancy and childbirth did not aggravate the course of symptoms or CT features of COVID-19 pneumonia in 15 pregnant women in this study, all of whom had mild symptoms and achieved good recovery from COVID-19. No SARS-CoV-2 infections were detected in the neonates.

  Liu et al. (Mar 7, 2020). Pregnancy and Perinatal Outcomes of Women with Coronavirus Disease (COVID-19) Pneumonia: A Preliminary Analysis. Amer Journ of Roentgenology. https://www.ajronline.org/doi/abs/10.2214/AJR.20.23072

Modelling and Prediction

- This study suggests that the current reporting of COVID-19 cases in most countries is significantly underestimating the true scale of the pandemic. The lack of testing makes it difficult to estimate the true incidence and fatality rates.
- The author highlights the importance of publicly accessible real-time data and the relevance of combining global healthcare efforts.

  Lachmann (Mar 14, 2020). Correcting under-reported COVID-19 case numbers. Pre-print downloaded Mar 19 from https://doi.org/10.1101/2020.03.14.20036178

Public Health Policy and Practice

- This article displays the COVID-19 Risk Assessment for mass gatherings tool developed by WHO, and highlights the importance of using it as a resource when canceling events and clearly communicating the justification.

  McCloskey et al. (Mar 19, 2020). Mass gathering events and reducing further global spread of COVID-19: a political and public health dilemma. Lancet. https://www.thelancet.com/lancet/article/s0140-6736(20)30681-4

- Results from a cross-sectional online survey of 6,000 adults in the US and UK show the misconceptions of COVID-19 among the general public. Government agencies, media, and healthcare workers could launch information campaigns to target these misconceptions, which could help reduce anxiety around COVID-19 and ensure the public is well-informed.

  Geldsetzer (Mar 13, 2020). Knowledge and perceptions of coronavirus disease 2019 among the general public in the United States and the United Kingdom: A cross-sectional online survey. Pre-print downloaded Mar 19 from https://doi.org/10.1101/2020.03.13.20035568

Other Resources and Commentaries

- Safe patient transport for COVID-19 – Critical Care (Mar 18)
  - This letter includes some basic principles that HCWs who handle the transport of COVID-19 cases should consider to reduce nosocomial spread during patient transport: Early recognition of deteriorating patients, HCW safety, bystander safety, contingency plans for medical emergencies during transport, and post-transport decontamination.

- Health security capacities in the context of COVID-19 outbreak: an analysis of International Health Regulations annual report data from 182 countries – Lancet (Mar 18)
    - This report indicates that countries vary widely in terms of their capacity to prevent, detect, and respond to outbreaks and recommends capacity building and collaboration between countries to strengthen global readiness for COVID-19 control.

- New research on possible treatments for COVID-19 – NEJM (Mar 18)
    - In this audio interview, the editors evaluate possible treatments for COVID-19.

- Successful containment of COVID-19: the WHO-Report on the COVID-19 outbreak in China – Infection (Mar 17)
    - The editorial summarizes the strict public health interventions implemented in China that are potentially contributing to their steady decline in new cases and deaths related to COVID-19. However, a second wave of new cases could still occur due to low immunity in the community.